Dec. 9, 1969 D. J. NEALE, SR 3,482,818

TAPE DISPENSING CABLE SPINNING MACHINE

Filed June 19, 1967 3 Sheets-Sheet 1

Fig. 1.

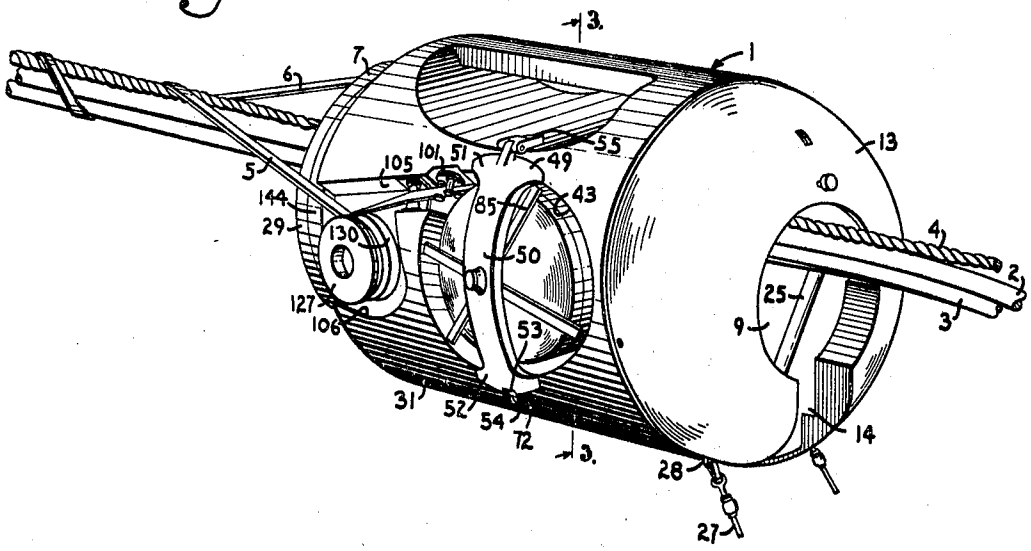
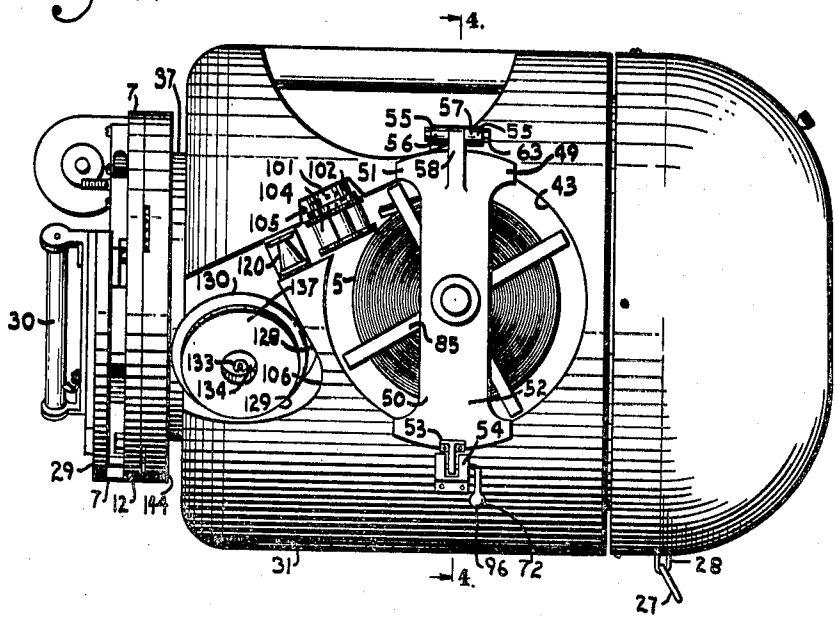


Fig. 2.



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TAPE DISPENSING CABLE SPINNING MACHINE

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Fig. 3.

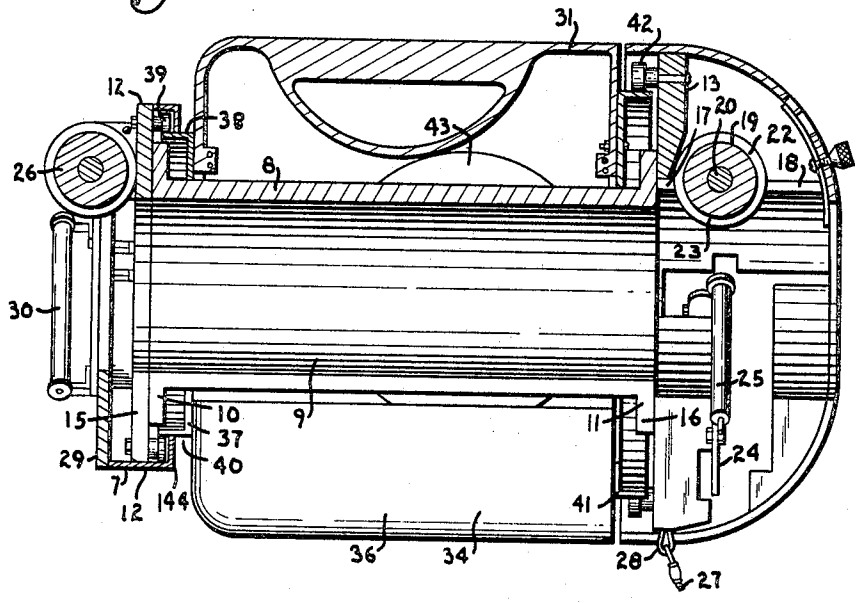
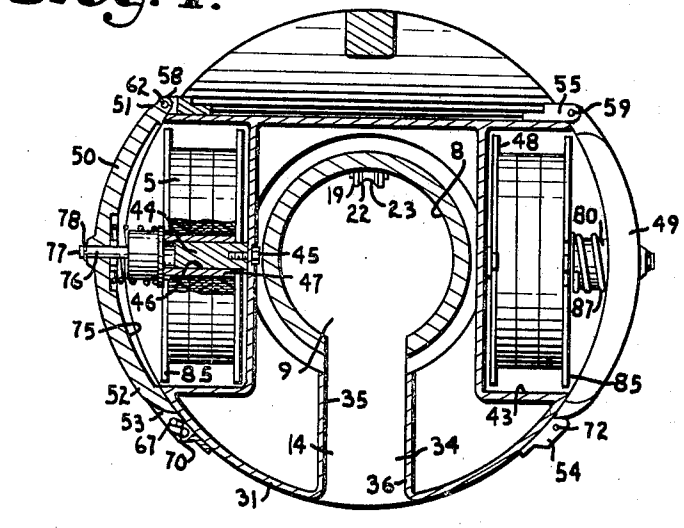


Fig. 4.



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TAPE DISPENSING CABLE SPINNING MACHINE

Filed June 19, 1967 3 Sheets-Sheet 5

Fig. 5.

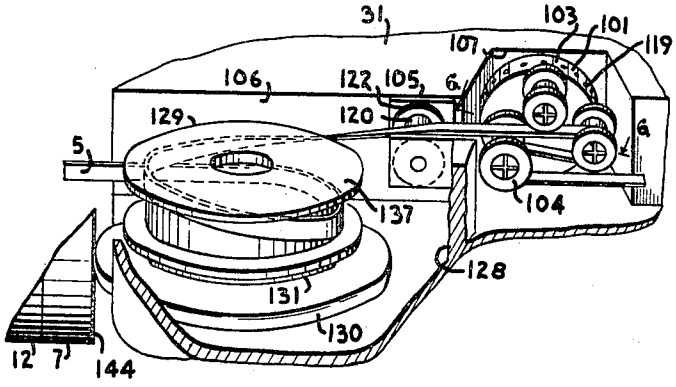


Fig. 6.

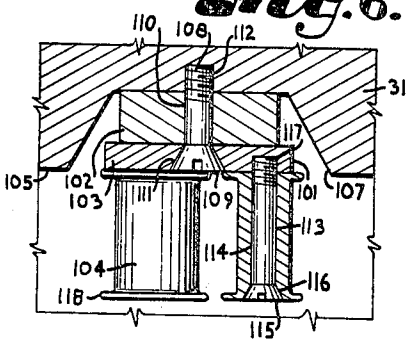


Fig. 7.

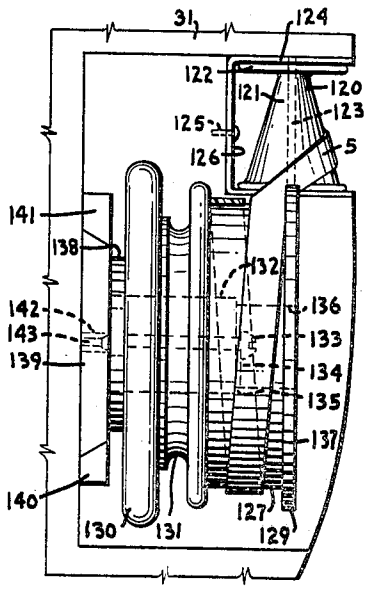


Fig. 9.

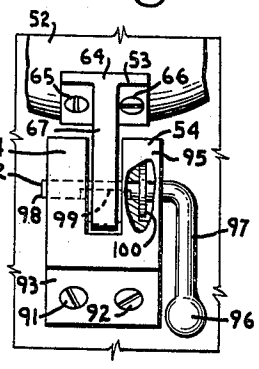
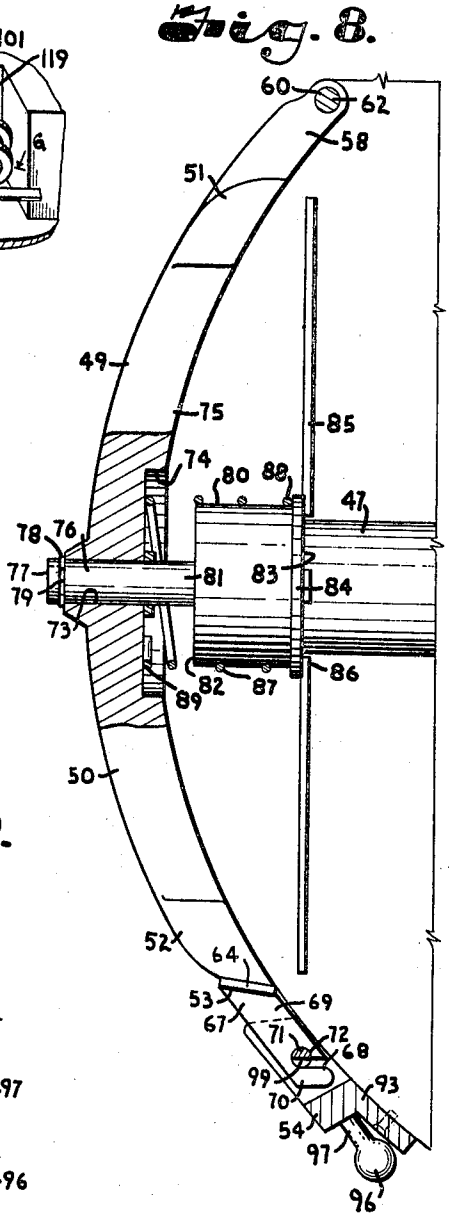


Fig. 8.



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United States Patent Office 3,482,818
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3,482,818

TAPE DISPENSING CABLE SPINNING MACHINE

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Filed June 19, 1967, Ser. No. 647,099
Int. Cl. B66d 1/36
U.S. Cl. 254—134.3 10 Claims

ABSTRACT OF THE DISCLOSURE

A lashing machine for securing aerial cables to a messenger by spinning one or more lashing tapes in spirals about said messenger and cables. The lashing machine has a trolley with a longitudinal passageway therethrough and a longitudinal gap therein for applying the trolley over said messenger and cables. The trolley has a rotatable spinning head with reels rotatably mounted thereon paying out lashing tape in response to movement of the trolley along the cable. The lashing tape is controlled and tensioned by a plurality of tensioning rollers, a cone shaped pulley and a guide pulley whereby with each tape having one end secured to the messenger and the aerial cable the tape is pulled from the reels and moved over the rollers which are adjustable as a unit to tension the tape, said cone shaped and guide pulleys or rolls directing the lashing tapes onto the messenger and the aerial cables to bind same together.

Heretofore, it has been common practice in the installation of aerial cables to string a messenger between supports such as poles and then to attach an aerial cable near a support and lift the cable whereby it extends along the supporting messenger and then lash the cable to the messenger by spinning a lashing wire or wires in a spiral formation around the cable or cables and the messenger. It has been found that by spinning a flat tape of suitable plastic such as nylon or the like, many difficulties experienced with the lashing wire are eliminated. The tape has a substantial area of contact with the cable sheath thereby distributing the lashing force over a greater area of the sheath so that there is no tendency to indent or cut the sheath as with wire. The tape is substantially inert, long wearing and does not abrade the cable sheath in the event of relative movement that occurs due to wind, change of temperature and the like. While various lashing machines have been used to spin a lashing wire or wires in a spiral formation about the cable or cables and the messenger, such machines are not suitable for use in applying the plastic tape.

The principal objects of the present invention are to provide a lashing machine for spinning a plurality of lashing tapes about a supporting messenger and one or more aerial cables to be supported thereby; to provide a lashing machine with a spinning head carrying a plurality of lashing tape reels and which is rotatable about the spinning axis through driving mechanisms actuated by the lay of each lashing tape progressively with movement of the lashing machine about a messenger; to provide a lashing machine having a substantially balanced spinning head to effect uniform tension and lay of the lashing tapes; to provide a spinning head in which the housings for the driving mechanisms and the lashing tape reels enhance the structural strength of the spinning head and reduce the weight of the lashing machine; and to provide a lashing machine having a simple, compact and efficient means for dispensing, tensioning and guiding the lashing tape onto the messenger and one or more aerial cables.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings which are

set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a perspective view of a lashing machine constructed in accordance with the present invention and illustrating operation thereof for lashing one or more aerial cables to their supporting messenger with lashing tapes.

FIG. 2 is a side elevation view illustrating one of the lashing tape reels, the tape tensioning rollers, the direction changing pulley and the guide pulley.

FIG. 3 is a longitudinal section through the lashing machine taken on line 3—3, FIG. 1.

FIG. 4 is a transverse section through the lashing machine taken on line 4—4, FIG. 2.

FIG. 5 is an enlarged partial perspective view of the tape tensioning and guidance mechanisms.

FIG. 6 is a sectional view of the tape tensioning rollers taken on line 6—6, FIG. 5.

FIG. 7 is an enlarged partial elevation of the tape guidance mechanisms.

FIG. 8 is an enlarged fragmentary sectional view of the lashing tape reel and hold-down device.

FIG. 9 is an enlarged detail view of the latching device for the hold-down device.

Referring more in detail to the drawings:

The reference numeral 1 generally designates a cable lashing machine embodying the features of the present invention and which is adapted for lashing one or a plurality of aerial cables, for example, cables designated as 2 and 3, to a supporting messenger 4 by means of spirally spun lashing tapes 5 and 6 as shown in FIG. 1.

The lashing machine 1 includes a trolley 7 comprising a cylindrical body 8 having a longitudinal passageway 9, said body having radially directed annular flanges 10 and 11 at the respective ends thereof and mounting ring shaped heads 12 and 13, respectively. The cylindrical body 8 has a longitudinal gap or throat 14 connected with the passageway 9 and registered with openings 15 and 16 in the heads 12 and 13 as shown in FIGS. 3 and 4 to pass the machine over a messenger 4 and the cables 2 and 3 to be lashed thereto as later described.

The front head 13 has a forwardly projecting flange 17 framing the end opening 16 and gap 14 of the cylindrical body 8. Projecting forwardly from the flange 17 in diametrically opposed relation with the gap 14 are spaced apart extensions 18 to accommodate a trolley wheel 19 therebetween. The trolley wheel 19 is fixed on a shaft 20 having the ends rotatably mounted on the respective extensions 18.

The trolley wheel 19 has a resilient facing 22 to enhance friction thereof with the messenger 4 and the facing is provided with an annular groove 23 to facilitate retention and guiding of the wheel 19 thereon.

In order to guide the aerial cables 2 and 3 into lashing position, the front head 13 carries pivotally mounted brackets 24 on opposite sides of the passageway 16 through the trolley 7. The brackets 24 support rotatably mounted elongate guide rollers 25 in a V-form across the entrance end of the passageway 16 whereby the aerial cables 2 and 3 ride within the V in bearing contact with the rollers 25. The position of the guide rollers 25 thus brings the cables together in a substantially triangular form and in position so that the aerial cables 2 and 3 are adapted to closely engage the messenger 4.

A freely rotatable trolley wheel 26 is rotatably mounted on the outer face of the rear head 12. The trolley wheel 26 corresponds in construction with the trolley wheel 19 previously described for supporting that end of the trolley. The trolley wheel 26 is preferably adjustably mounted to prevent shifting thereof toward the passageway 9 through the cylindrical body 8 of the trolley 7,

said trolley wheel 26 being retained from movement in the opposite direction unless released for movement of the trolley wheel 26 to a retracted position. The trolley wheels 19 and 26 are thus adapted for rolling support on the messenger 4 to carry the machine therealong under pull of a cable 27 that is connected with a ring 28 which is attached to the forward head on the opposite side of the gap 16 with respect to the cable 21 as previously described.

The end of the trolley 7 carried by the wheel 26 is closed by an arcuate plate or gate 29 which is pivotally mounted on one side of the rear plate 12 to swing to and from closing relation with the gap 15. The gate 29 may be suitably retained in a closed position. The aerial cables are supported in contact with the messenger 4 by means of angularly arranged rollers 30 rotatably mounted on the arcuate gate 29. The rollers 30 function similarly to the rollers 25 to keep the aerial cables 2 and 3 in a substantially triangular formation and in contact with the underside of the supporting messenger 4.

The machine also includes a spinning head 31 that is rotatably mounted about the longitudinal axis of the cylindrical body 8 of the trolley 7. The spinning head 31 has a longitudinal gap 34 in the circumferential wall thereof and the sides of the gap are defined by inwardly extending parallel flanges 35 and 36 spaced apart according to the spacing of the longitudinal gap 14 in the trolley 7.

Fixed to the outer side of the rear end flange 32 is an angle 37 having one flange fixed to the end flange 32 of the spinning head 31. The other flange extends outwardly toward the end plate 12 and forms a track 38 which is supported on a plurality of circumferentially spaced rollers 39 carried on end plate 12. The rollers 39 are rotatably and adjustably mounted on the end plate 12 to permit adjustment of the rollers 39 and thereby maintain the track in concentric relation with the cylindrical body 8 of the trolley 7. The track also has a gap 40 aligned with the longitudinal gap 14 and with the opening 15 in the head 12. The opposite end of the spinning head 31 has a similar track 41 fixed to the end flange 33 but which is of larger diameter for supporting a series of circumferentially arranged rollers 42 adjustably carried on the end flange 13 in the same manner as the rollers 39 on the end flange 12. The spinning head 31 is thus adapted for rotatable support about the longitudinal axis of the trolley 7.

The above described trolley structure, guide members and spinning head mounting are substantially the same in structure and operation as corresponding structure shown and described in Patent No. 2,592,943 issued Apr. 15, 1952 to Dory J. Neale.

The improvement consists of structure providing for application of lashing tape to secure aerial cables to messenger or strand including the apparatus that dispenses the lashing tapes, tensions the same and guides the said tapes into position on the messenger and the aerial cable or cables to be supported thereby as described below.

Formed in diametrically opposed sides of the spinning head 31 are reel recesess 43 each carrying a cylindrical spindle 44, therein. The spindles 44 are elongated cylindrical rods suitably secured to the spinning head 31 in the reel recesses 43 as by screws 45. Rotatably engaging the spindles 44 are reels 46 carrying rolls of lashing tapes. The tape carrying reels 46 each consist of a hollow elongate cylindrical reel body 47 with its interior opening complementary to the spindles 44. In the illustrated structure the cylindrical reel body 47 has a plurality of elongate bars 48 suitably secured to the reel body 47 as by welding and the bars 48 are circumferentially placed at 90° intervals around one end of the cylindrical reel body 47 and in radial relation thereto. In the illustrated structure, the cylindrical reel body 47 is of a width sufficient to support three rolls of plastic tape. The reels 46 are retained on the spindles 44 by means of a hold-down device 49.

The hold-down device 49 includes an elongate arm 50 which has one end 51 pivotally mounted on the spinning head 31 and the other end 52 has a latch member shown in the form of a T-shaped bracket 53 mounted thereon and adapted to be retained in a latching device 54. The elongate arm 50 is curved to conform to the shape of the spinning head 31.

The pivotal mounting of the end 51 includes a yoke bifurcated member 55 suitably secured to the spinning head 31 as by welding, said yoke 55 having a pair of spaced apart outwardly extending ears 56 and 57 for receiving an ear 58 therebetween. The ears 56 and 57 and arm ear 58 have aligned openings 59 and 60 for receiving a pivot pin on bolt 62. The bolt 62 is suitably retained in the ears 56 and 57 and in the arm ear 58 as by a nut 63.

The T-shaped bracket 53 has a base member 64 suitably secured to the arm end 52 as by screws 65 and 66. Extending outwardly from the base member 64 is an outstanding leg or tongue 67 which has an inverted generally L-shaped slot 68 extending inwardly from the tongue side 69 adjacent the spinning head 31. The inverted L-shaped slot 68 has an entry portion 70 terminating in a retaining portion 71 which is semi-circular to receive and retain a latch rod 72 to be described later.

Each elongate arm 50 has a circular bore 73 aligned with the spindle 54 and the arm 50 has a circular recess 74 co-axial with the bore 73 in a side 75 of the arm 50 adjacent the spinning head 31. An elongate cylindrical shaft 76 is movable in the bore 73. One end 77 of the shaft 76 has a keeper or snap ring 78 inserted in an annular recess 79 adjacent the end 77 and adapted to engage the arm to limit inward movement of the shaft 76. A cylindrical housing 80 is suitably secured to the other or opposite end 81 of the shaft 76, said housing having a closed end 82 with the opposite end 83 of the housing 80 being open and having an annular flange 84 thereon. A plurality of elongate bars 85 are circumferentially spaced around the end 83 in radial relation to the housing and suitably secured to the flange 84. In the illustrated structure the bars 85 are spaced at ninety degree (90°) intervals in radial relation to the housing 80 and each bar 85 has one end 86 suitably secured to the flange 84 as by welding. A suitability resilient means such as a spring 87 is mounted around the housing 80 with one end 88 engaging the annular flange 84 with the opposite end 89 engaging the arm 50 within the recess 74. The spring 87 urges the bars 85 into contact with rolls of plastic tape mounted on the reel body 47 and the keeper 78 unites the movement of the housing 80 toward the tape.

The latching device 54 is suitably secured to the spinning head 31 as by screws 91 and 92 in a base member 93. A pair of ears 94 and 95 extend outwardly from the base member 93 and are in spaced relation parallel to and straddling the outstanding leg 67 when the hold down device 49 is in a closed or latched position as shown in FIGS. 8 and 9. The latch rod 72 is an L-shaped cylindrical rod having a knob 96 on an outstanding leg 97. The other leg 98 is pivotally mounted in the ears 94 and 95 and central portion recessed to form a semicylindrical portion 88 complementary to the semicircular slot portion 71. The leg 98 is retained in the latching device 54 by a coil spring 100 which is fastened to one of the ears as for the latch rod 72 into the latched position as shown in FIGS. 8 and 9. The outstanding leg 67, the base member 93, and the ears 94 and 95 are curved to conform the shape of the spinning head 31.

The latch rod 72 is pivoted from the position shown in FIGS. 8 and 9 toward the end 52 where the portion 99 of leg 98 disengages from the semi-circular retaining portion 71, said portion 99 being of a thickness to move

through the entry slot portion **70** releasing the arm **50** and thereby allowing the elongate arm **50** to pivot about the bolt **62**. The latch rod **72** must have a force exerted on the leg **97** or knob **96** sufficient to overcome the resistance of spring **100** to disengage the semi-cylindrical portion **99** from the semi-circular slot portion **71**. New rolls of plastic tape are installed on the reel body **47** and the hold-down device **49** is manually pivoted into the position shown in FIG. 8 and the latch rod **72** must then be pivoted toward the end **52** and released thereby allowing the spring **100** to urge the portion **99** to engage in the portion **71**.

Lashing tape payed out from each of the reels **46** engages a respective tape tensioning apparatus **101** which includes a spacer disc **102**, an adjustably mounting disc **103**, and a plurality of tensioning rollers **104** rotatably mounted on the mounting disc **103**. The tape tensioning apparatus **101** is installed in one leg **105** of an L-shaped recess extension **106** that extends from the recess **48** to the end flange **32**, being tangent to the recess **43**. In the illustrated structure the spacer disc **102** and the mounting disc **103** are suitably secured in a niche **107** of the leg **105** as by an adjustable fastening device such as a screw **108** having a conical head **109**. The screw **108** is installed in a bore **110** in the spacer disc **102** and in a countersunk opening **111** in the mounting disc **103**. The screw **108** is engaged in a threaded socket **112** in the spinning head **31**. In the illustrated structure there are three tensioning rollers **104** and each roller **104** has a circular bore **113** through which an adjustable fastening device such as a screw **114** is inserted to rotatably mount the roller **104** on the mounting disc **103**. The screw **114** has a conical head **115** which is received in a countersunk opening **116** or enlargement of the bore **113**. Each screw **114** engages in one of three threaded sockets **117** in the mounting disc **103**. Each roller **104** has an annular flange **118** at each end to retain the lashing tape on the roller **104**. The rollers **104** are in spaced relation on the mounting disc **103** and are so placed that they are almost touching other and adjacent rollers **104**.

The lashing tape payed out from each of the three rollers **104** forming bights in the tape. In the illustrated structure the lashing tape forms a bight around one roller, forms a reverse bight around another roller, and is engaged by the remaining collar as shown in FIG. 5. A plurality of circumferentially spaced openings **119** in the periphery of the mounting disc **103** are adapted to receive an adjustment rod or tool (not shown) which assists in rotating the mounting disc **103** about the screw **108** to vary the tension in a bight in the lashing tape. The screw **108** must be loosened to permit the mounting disc **103** to be rotated and then tightened to secure the disc **103** and rollers **104** in the selected position. Adjustment of the mounting disc **103** varies the relative position of the rollers **104** and the bights in the lashing tapes thereby changing the tension applied to the lashing tape.

A direction changing pulley **120** is mounted in each leg **105** adjacent the tape tensioning apparatus **101** and the lashing tape leaving the spaced rollers **104** engages the pulley **120**. The pulley **120** has a conical shaped body portion **121** which is a frustum of a cone. Annular flanges **122** are arranged on each end of the body portion **121** to retain the lashing tape on the lashing tape on the pulley **120**. The pulley **120** rotates about a pin **123** which extends between flanges **122** of a bracket **124** which is shown as being V-shaped and suitably secured in the leg **105** as by a screw **125** engaging a web **126** of the bracket **124** and engaging the spinning head **31**. The bracket **124** with the pulley **120** therein is removable and may be replaced as a unit. The pulley **120** and the rollers **104** are in alignment in the leg **105** and the conical shape of the body portion **121** changes the direction of the lashing tape passing over the pulley **120**.

The lashing tape then engages a guide pulley **127** mounted in the other leg **128** of the L-shaped recess extension **106**. The guide pulley **127** is cylindrical and has annular flanges **129** on each end of the pulley **127** to retain a loop in the lashing tape on the pulley **127**. A driving wheel **130** is connected to a body member **131** which is in spaced relation to and between the pulley **127** and the driving wheel **130**. The driving wheel **130** and the pulley **127** are connected and rotate together on a spindle **132** and the wheel **130** and the pulley **127** are retained on the spindle by a threaded stud **133**. A washer **134** is installed under a head **135** of the stud **133** and in a recess **136** which is in the exposed face **137** of the pulley **127**. The spindle **132** has a base flange **138** suitably secured to a slide plate **139**. The slide plate **139** slides between a pair of guide plates **140** and **141** which are suitably secured to the spinning head **31**. The slide plate **139** has an elongate slot **142** into which a finger **143** extends from the spinning head **31** to limit the travel of the slide plate **139**. A suitable resilient means urges the driving wheel **130** into engagement with a trace **144** on the head **12** by urging the slide plate **139** toward the track **144**. The driving wheels **130** travel along the track **144** in response to friction of the lashing tapes **5** and **6** passing over the guide pulley **127**. The trolley **7** and the head **12** along with the track **144** remain in an upright position shown in FIG. 1 relative to the messenger **4** while the spinning head **31** rotates about the messenger **4** in response to the driving wheels **130** traveling along the track **143**.

Rolls of lashing tape are installed on the reels **46** and each hold-down device **49** is placed in the latched position. The lashing tape from each reel **46** is engaged with the rollers **104** on each side of the spinning head **31** by forming a bight around one roller and forming a reverse bight around another roller with a remaining roller engaging the lashing tape. The lashing tape next engages a conical direction changing pulley **120** which directs each lashing tape toward one of the guide pulleys **127**. Each lashing tape forms a loop around the respective guide pulley **127** and is guided onto the messenger **4** where each lashing tape is suitably secured to the messenger **4**. The relative position of the rollers **104** on the mounting disc **103** is adjusted by rotating the mounting disc **103** until the desired tension is induced in each lashing tape. The lashing machine **1** is then prepared to be operated in response to a pull on a cable **27**.

It is to be understood that while I have illustrated and described one form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown except insofar as such limitations are included in the claims.

What I claim and desire to secure by Letters Patent is:

1. A lashing machine for securing aerial cables to a messenger including:

(a) a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying the trolley over a messenger and the aerial cables to be lashed thereto,

(b) a spinning head,

(c) means for rotatably supporting the spinning head on the trolley about the axis of said passageway,

(d) means for driving the spinning head to effect rotation thereof,

(e) means for supporting rolls of lashing tape on the spinning head, said means consisting of a pair of tape receiving members mounted on the spinning head, said members being in diametrically opposed relation on opposite sides of the spinning head, a reel rotatably mounted on each tape receiving member, said reels each supporting a plurality of rolls of lashing tape, and a hold-down device retaining the reels on each tape receiving member,

(f) means guiding the lashing tapes from the supported rolls onto the messenger and the aerial cable, said

tape being operatively associated with the spinning head, driving means to rotate the spinning head in response to paying out of said tape,

(g) means engaging the lashing tape between the means for supporting the rolls of lashing tape and the means for driving the spinning head for tensioning said tape, said lashing tape engaging means including a mounting disc adjustably mounted adjacent each of said tape receiving members, and a plurality of spaced rollers rotatably mounted on the mounting disc with the tape extending from one to another forming bights in said tape whereby adjustment of the mounting disc varies the relative position of the rollers and bights changing the tension applied to the lashing tape.

2. A lashing machine for securing aerial cables to a messenger as set forth in claim **1** wherein the means guiding the lashing tapes onto the messenger and the means for driving the spinning head include:

(a) a cone shaped pulley rotatably mounted adjacent each of said spaced rollers,

(b) a guide pulley rotatably mounted adjacent each cone shaped pulley, and

(c) a driving wheel connected to the guide pulley, said driving wheel engaging the trolley whereby the lashing tapes are guided onto the messenger and the aerial cables and said tapes rotate each guide pulley and the driving wheel connected thereto thereby rotating the spinning head through engagement of the driving wheels with the trolley.

3. A lashing machine for securing aerial cables to a messenger encluding:

(a) a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying the trolley over the messenger and the aerial cables to be lashed thereto,

(b) a spinning head,

(c) means for rotatably supporting the spinning head on the trolley about the axle of said passageway,

(d) a recess in each side of the spinning head, said recesses being in diametrically opposed relation,

(e) reels supporting rolls of lashing tape, said reels being rotatably mounted and retained in opposed recesses,

(f) an L-shaped extension of each recess, said extension having one leg in tangential relation to each recess and another leg offset therefrom,

(g) a plurality of spaced tensioning rollers rotatably mounted in the one leg of each recess extension,

(h) a cone shaped pulley rotatably mounted adjacent the spaced rollers in the one leg of each recess extension, and

(i) a guide pulley and driving wheel rotatably mounted in the other leg of each recess extension, whereby each lashing tape reel pays out tape in succession to the spaced rollers where tension is applied to the tape, to the cone shaped pulley which changes the direction of the tape, and to the guide pulley where the tape is guided onto the messenger and aerial cables and rotation of the guide pulley and driving wheel spins the spinning head thereby applying the tape from each reel in a spiral about the messenger and the aerial cables.

4. A lashing machine for securing aerial cables to a messenger as set forth in claim **1** wherein each of said rotatably mounted lashing tape reels includes:

(a) a cylindrical spindle mounted in each recess, said spindles being in diametrically opposed relation,

(b) a hollow cylindrical reel body engaging each spindle and rotatable thereon, said reel body supporting a plurality of rolls of lashing tape, and

(c) a plurality of elongate reel bars circumferentially spaced and fixedly mounted on each reel body in radial relation thereto.

5. A lashing machine for securing aerial cables to a messenger as set forth in claim **4** wherein each lashing tape reel is retained on the spindle by a hold-down device including:

(a) an elongate arm having one end pivotally mounted on the spinning head, said arms each having a bore aligned with the spindle and an arm recess co-axial with the bore, said arm recess being located in a side of the arm adjacent the spinning head,

(b) a latching device associated with an opposite end of the elongate arm and the spinning head, said latching device retaining the elongate arm in a latched position thereby retaining the lashing tape reel on the spindle,

(c) an elongate shaft movably mounted in the bore, said shaft having one end adapted to engage the elongate arm opposite said arm recess,

(d) a hollow cylindrical housing having one end mounted on an opposite end of the elongate shaft, said housing engaging the reel body,

(e) an annular flange, said flange being mounted on an end of the housing opposite the end mounted on the elongate shaft,

(f) a plurality of elongate housing bars circumferentially spaced and fixedly mounted on the annular flange in radial relation thereto, and

(g) a resilient means engaging the annular flange and the recess in the elongate arm, said resilient means urging the elongate housing bars into contact with the rolls of lashing tape.

6. A lashing machine as set forth in claim **3** wherein said plurality of spaced tensioning rollers includes:

(a) a mounting disc having a bore,

(b) a fastening device mounted in the bore and adjustably securing the mounting disc in said one leg of each of said L-shaped recess extensions, said mounting disc being rotatable about the fastening device,

(c) said plurality of spaced tensioning rollers being rotatably mounted on the mounting disc,

(d) an annular flange fixedly mounted on each end of each roller, whereby lashing tape is retained on each roller with the tape extending from one roller to another forming bights in said tape and adjustment of the mounting disc varies the relative position of the rollers and the bights changing the tension applied to the lashing tape.

7. A lashing machine for securing aerial cables to a messenger as set forth in claim **3** wherein the cone shaped pulley includes:

(a) a conical body portion, said body portion being a frustum of a cone,

(b) means for rotatably mounting said body portion in said one leg of each of said L-shaped recess extensions, adjacent said spaced tensioning rollers, and

(c) an annular flange on each end of the body portion, whereby the lashing tape is retained in engagement thereon and the direction of travel of the lashing tape is directed toward said guide pulley.

8. A lashing machine for securing aerial cables to a messenger as set forth in claim **3** wherein said guide pulley and driving wheel include:

(a) a cylindrical shaped guide pulley adapted to be engaged by a loop formed in the lashing tape,

(b) a tubular spindle mounted in the other leg of each of said L-shaped recess extensions,

(c) a threaded stud mounted in the tubular spindle with one end retaining the guide pulley and the other end secured in the spinning head,

(d) annular flanges on each end of the cylindrical shaped guide pulley, whereby the tape is retained in engagement thereon, and

(e) a driving wheel mounted on the tubular spindle in spaced relation to and connected to the cylindrical shaped guide pulley, said driving wheel engaging the trolley, whereby when the lashing machine is drawn along the messenger, the lashing tape rotates the guide pulley and the driving wheel on the tubular spindle thereby rotataing the spinning head through engagement of the driving wheels with the trolley.

9. A lashing machine for securing aerial cables to a messenger as set forth in claim **5** wherein said latching device includes:

(a) a T-shaped bracket mounted on said opposite end of said elongate arm, said T-shaped bracket having an outstanding leg,

(b) an inverted L-shaped slot intermediate the ends of the outstanding leg in an edge adjacent the spinning head, said slot having an entry portion and a retaining portion, said retaining portion being semi-circular,

(c) a latch housing mounted on the spinning head and having ears in spaced relation parallel to and straddling the outstanding leg of the T-shaped bracket when said elongate arm is in a latched position,

(d) an L-shaped latch rod pivotally mounted in the latch housing, said latch rod having a semi-cylindrical recess in the one leg intermediate its ends forming a semi-cylindrical portion complementary to the semicircular retaining portion of said L-shaped slot, and

(e) a resilient means mounted in one of the ears, said resilient means being connected to one of the ears and to the latch rod to urge the latch rod to the latched position thereby retaining the elongate arm in place, whereby pivoting the latch rod toward the spinning head engages the semi-cylindrical portion of the latch rod in the semi-circular latch retaining portion of the inverted L-shaped slot and pivoting the latch rod toward the elongate arm releases the semi-cylindrical portion of the latch rod from the semi-circular retaining portion of the L-shaped slot thereby releasing the elongate arm so that a reel carrying rolls of lashing tape may be installed on the spindle in the recess of the spinning head.

10. A lashing machine for securing aerial cables to a messenger including:

(a) a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying the trolley over a messenger and the aerial cables to be lashed thereto,

(b) a spinning head,

(c) means for rotatably supporting the spinning head on the trolley about the axis of said passageway,

(d) means for driving the spinning head to effect rotation thereof,

(e) means for supporting a roll of lashing tape on the spinning head, and including a tape receiving member mounted on the spinning head, a reel rotatably mounted on said tape receiving member, said reel supporting a roll of lashing tape, and a hold-down device retaining the reel on said tape receiving member,

(f) means guiding the lashing tape from the supported roll onto the messenger and the aerial cable, said tape being operatively associated with the spinning head, driving means to rotate the spinning head in response to paying out of said tape,

(g) means engaging the lashing tape between the means for supporting the roll of lashing tape and the means for driving the spinning head for tensioning said tape said lashing tape engaging means including a mounting disc adjustably mounted adjacent said tape receiving member and a plurality of spaced rollers rotatably mounted on the mounting disc with the tape extending from one to another forming bights in said tape whereby adjustment of the mounting disc varies the relative position of the rollers and the bights changing the tension applied to the lashing tape.

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